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United States Department of Agriculture

Federal Grain Inspection Service

U.S. Export Corn Quality, 1984

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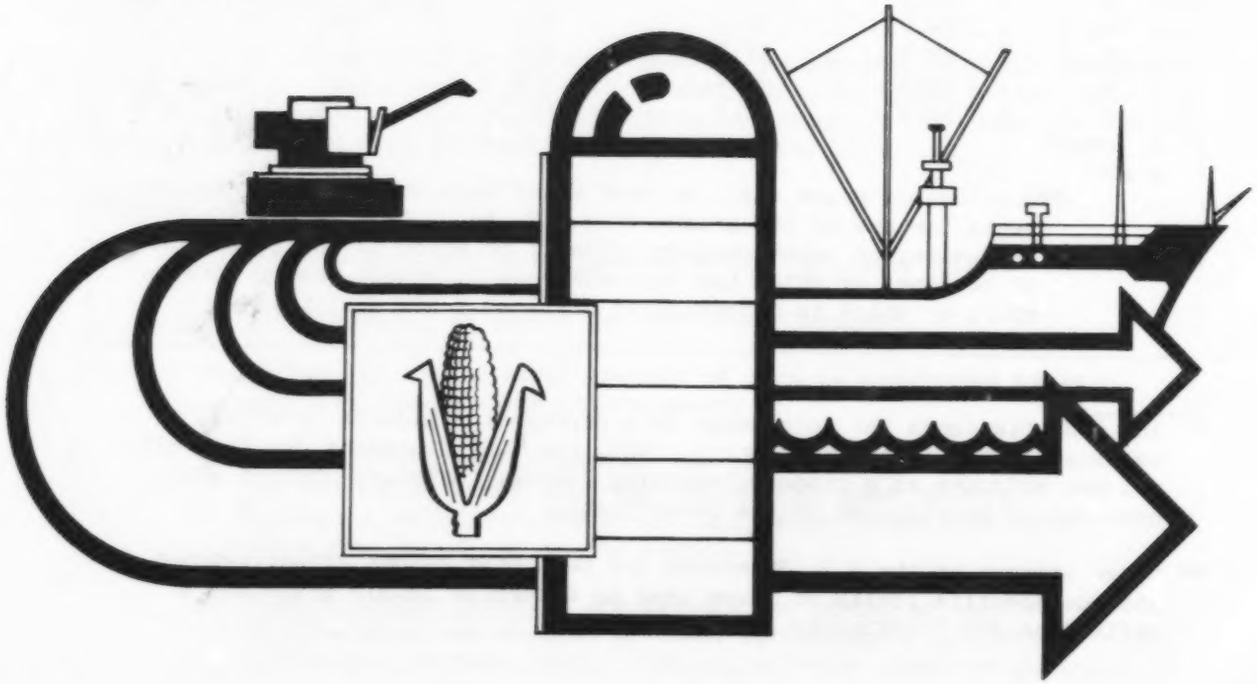

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CORN
Grades and Grade Requirements

Corn is divided into three classes: yellow corn, white corn, and mixed corn. Yellow corn is the class predominantly shipped for export from the United States. There are no subclasses of corn. Each class of corn is divided into five U.S. numerical grades and U.S. Sample grade. Special grades are provided to emphasize special qualities or conditions affecting the value of the corn. These special grades are added to and made a part of the grade designation and do not affect the numerical or Sample grade designation.

U.S. Standards for Corn*

Grade	Minimum test weight per bushel (pounds)	Maximum Limits of —			
		Moisture*	Broken corn and foreign material (BCFM)	Damaged kernels	
				Total	Heat-damaged kernels
		(percent by weight)			
U.S. No. 1	56.0	14.0	2.0	3.0	0.1
U.S. No. 2	54.0	15.5	3.0	5.0	0.2
U.S. No. 3	52.0	17.5	4.0	7.0	0.5
U.S. No. 4	49.0	20.0	5.0	10.0	1.0
U.S. No. 5	46.0	23.0	7.0	15.0	3.0
U.S. Sample grade:					

**U.S. Sample grade shall be corn which does not meet the requirements for any of the grades from U.S. No. 1 to U.S. No. 5, inclusive; or which contains stones; or which is musty, or sour, or heating; or which has any commercially objectionable foreign odor; or which is otherwise of distinctly low quality.

* The U.S. Standards for Corn shown here represent standards in effect in calendar 1984. Effective Sept. 9, 1985, the U.S. Standards for Corn will not use moisture as a grade-determining factor. Moisture content will continue to be reported on the certificate.

** Other changes to the U.S. Standards for Corn that become effective Sept. 9 include specific limits of items used to determine Sample grade and a definition for "distinctly low quality."

For more information, contact Information Staff, Administrator's Office, Federal Grain Inspection Service, U.S. Department of Agriculture, Washington, DC 20250; telephone: (202) 382-0216.

July 1985

U.S. EXPORT CORN QUALITY, 1984

Introduction

The U.S. Department of Agriculture, Federal Grain Inspection Service (FGIS) analyzed quality of 1,686 million bushels of corn exports. The data represented 88 percent of the total 1,914 million bushels of corn inspected for export during calendar 1984.

FGIS received inquiries from importers in 1984 about heat and mold damaged kernels and broken corn and foreign material (BCFM) on 16 U.S. corn shipments. After checking by FGIS' International Monitoring Staff, only one incident was attributed to discrepancies in inspection procedures.

Of the inspected corn exports studied by FGIS, 67 percent graded U.S. No. 3 and 31 percent graded U.S. No. 2. BCFM averages for No. 2 and No. 3 grades were, respectively, 0.3 and 0.4 percent less than the maximum grade limit, although some shipments were at or near the limits for both grades. Total damaged kernels averages for No. 2 and No. 3 grades were, respectively, 1.5 to 2.7 percent less than the maximum grade limit. The data suggest that discrepancies in origin and destination BCFM and total damaged kernels may be attributed in part to conditions following inspection and loading, such as increased handling and intransit segregation of cargo. The incidents may also suggest buyer dissatisfaction with factor limits in the U.S. Grain Standards, or other unknown reasons.

Corn accounts for the largest share -- 42 percent -- of all American grain exports. Two out of every three bushels of corn inspected for export move through Louisiana and Texas Gulf ports and slightly less than one out of every eight bushels are shipped through the Pacific ports.

Quality Factors

Tables 1-4 analyzes data reported on the following quality factors:

- "Test weight" is pounds per Winchester bushel.
- "Moisture" is the water content of corn as determined by an approved electronic moisture meter.
- "BCFM" is composed of kernels and pieces of kernels of corn and all matter other than corn which will pass readily through a 12/64-inch sieve, and all matter other than corn which remains in the sieved sample.
- "Total damaged kernels" are kernels and pieces of kernels of corn which are damaged by heat, sprouting, frost, discoloration, weather, mold, disease, or other types of damage.
- "Heat-damaged kernels" are kernels and pieces of corn kernels which have been materially discolored and damaged by heat or respiration.

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Survey Results

A summary of quality factor averages for U.S. No. 2 and U.S. No. 3 grade yellow corn exports follows:

- Test weight averages (limits 54.0 and 52.0 pounds per Winchester bushel) were 55.9 and 55.8 pounds for U.S. No. 2 and U.S. No. 3, respectively. Ranges were 54.0 - 59.5 pounds for U.S. No. 2 and 52.5 - 58.5 pounds for U.S. No. 3.

- Moisture averages (limits 15.5 and 17.5 percent of total weight) were 14.0 and 14.1 percent for U.S. No. 2 and U.S. No. 3, respectively. Ranges were 11.0 - 15.5 percent for U.S. No. 2 and 11.6 - 16.3 percent for U.S. No. 3.

- BCFM averages (limits 3.0 and 4.0 percent of total weight) were 2.7 percent for U.S. No. 2 and 3.6 percent for U.S. No. 3. Ranges were 0.2 - 3.0 percent and 0.8 - 4.0 percent, respectively.

- Total damaged kernels averages (limits 5.0 and 7.0 percent of total weight) were 3.5 percent for U.S. No. 2 and 4.3 percent for U.S. No. 3. Ranges were 0.3 - 5.0 percent and 0.7 - 7.0 percent, respectively.

- Heat-damaged kernels averages (limits 0.5 and 0.5 percent of total weight) were 0.0 percent for both grades. Ranges were 0.0 - 0.1 percent and 0.0 - 0.4 percent, respectively.

Table 1. Summary of export corn quality, 1984

Grade	U.S. No. 2		U.S. No. 3	
Volume (million bu)	516		1,130	
Factor	Grade Limit*	Average	Grade Limit	Average
Test weight	54.0	55.9	52.0	55.8
Moisture	15.5	14.0	17.5	14.1
BCFM	3.0	2.7	4.0	3.6
Total damaged kernels	5.0	3.5	7.0	4.3
Heat-damaged kernels	0.2	0.0	0.5	0.0

* Minimum allowed for test weight and maximum allowed for all other factors.

Table 2. Export corn volume by region and grade, 1984

Grade	1	2	3	Other	Total
	Volume (million bu)				
Region	Portion of total exports (percent)				
Gulf	3 / <1*	337 / 20	780 / 46	31 / 2	1,151 / 69
Pacific	0 / 0	81 / 5	133 / 8	4 / <1	218 / 13
Atlantic	0 / 0	70 / 4	105 / 6	1 / <1	176 / 10
Lakes	0 / 0	28 / 2	112 / 7	1 / <1	141 / 8
Total	3 / <1	516 / 31	1,130 / 67	37 / 1	1,686 / 100

* Individual totals rounded to whole percent. For example, 3 million bushels, less than 1 percent, of all U.S. No. 1 export corn was shipped through the Gulf.

Table 3 — Export U.S. No. 2 corn, 1984: factor ranges and averages by port regions

Factor	Region	Range	Average	No. 2 Grade Limit
		(percent)		
Test weight	Gulf	54.0 - 59.5	56.0	54.0
	Atlantic	54.0 - 57.5	55.6	
	Lakes	54.0 - 57.0	55.5	
	Pacific	54.0 - 59.0	55.5	
Moisture	Gulf	11.0 - 15.5	14.0	15.5
	Atlantic	13.4 - 15.3	14.5	
	Lakes	12.4 - 15.3	13.8	
	Pacific	12.0 - 14.9	13.7	
BCFM	Gulf	1.0 - 3.0	2.7	3.0
	Atlantic	2.1 - 2.9	2.7	
	Lakes	1.8 - 2.9	2.6	
	Pacific	0.2 - 3.0	2.7	
Total damaged kernels	Gulf	0.6 - 5.0	3.7	5.0
	Atlantic	0.8 - 4.7	3.0	
	Lakes	0.6 - 4.9	3.5	
	Pacific	0.3 - 4.8	3.0	
Heat-damaged kernels	Gulf	0.0 - 0.1	0.0	0.2
	Atlantic	0.0 - 0.1	0.0	
	Lakes	0.0 - 0.0	0.0	
	Pacific	0.0 - 0.0	0.0	

Table 4. Export U.S. No. 3 corn, 1984: factor ranges and averages by port regions

Factor	Region	Range	Average	No. 3 Grade Limit
		(percent)		
Test weight	Gulf	52.5 - 58.0	55.9	52.0
	Atlantic	54.5 - 58.5	55.9	
	Pacific	53.5 - 58.5	55.4	
	Lakes	53.5 - 57.0	55.4	
Moisture	Gulf	11.6 - 15.5	14.1	17.5
	Atlantic	13.4 - 15.4	14.8	
	Pacific	12.5 - 15.0	13.7	
	Lakes	12.2 - 16.3	14.2	
BCFM	Gulf	0.8 - 4.0	3.7	4.0
	Atlantic	1.6 - 3.9	3.4	
	Pacific	1.5 - 4.0	3.6	
	Lakes	2.8 - 4.0	3.6	
Total damaged kernels	Gulf	0.8 - 7.0	4.5	7.0
	Atlantic	1.0 - 6.6	3.7	
	Pacific	0.7 - 6.9	4.0	
	Lakes	0.8 - 6.8	3.8	
Heat-damaged kernels	Gulf	0.0 - 0.0	0.0	0.5
	Atlantic	0.0 - 0.0	0.0	
	Pacific	0.0 - 0.0	0.0	
	Lakes	0.0 - 0.4	0.0	